

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 70068	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/06273	International filing date (day/month/year) 13.06.2003	Priority date (day/month/year) 14.06.2002
International Patent Classification (IPC) or both national classification and IPC C07D401/06		
Applicant SYNGENTA PARTICIPATIONS AG et al.		

1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 26.11.2003	Date of completion of this report 22.09.2004
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Bakboord, J Telephone No. +49 89 2399-2168



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*):

Description, Pages

1-141 as originally filed

Claims, Numbers

1-5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☐ not complied with for the following reasons:

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
- ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-5
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-5
Industrial applicability (IA)	Yes: Claims	1-5
	No: Claims	

2. Citations and explanations

see separate sheet

IV Lack of unity of invention

The problem to be solved by the present application may be regarded as how to provide novel possibly improved nicotinoyl derivatives having herbicidal action. The closest prior art (Document D1) already describes nicotinoyl derivatives having herbicidal action namely compounds of formula I in which Q is Q₄ in which however R₄₁ is alkoxy and the group L-W is 4-oxo-imidazole-2-yl. One solution to this problem is alleged to be the replacement of the group R₄₁ by an (halo)alkyl or (halo)cycloalkyl group.

Another solution to this problem may be seen in replacing Q₄ for

- i. Q₁
- ii. Q₂
- iii. Q₃

A further group of solutions can be seen in the replacement of the group L-W for any of the different combinations given in the examples and any of the other combinations possible. No unifying technical relationship amongst these independently differentiating features is evident.

V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V.1 The present invention relates to herbicidal active nicotinoyl derivatives.

V.2 Reference is made to the following documents:

D1: EP-A-0270260
D2: WO-A-0015615, cited in the application
D3: WO-A-0039094, cited in the application
D4: WO-A-0194339, cited in the application
D5: WO-A-9525099
D6: US-A-5260262
D7: EP-A-0588357

V.3 Novelty

Document D1 discloses compounds of formula I in which Q is Q₄ in which

however R_{41} is alkoxy and the group L-W is 4-oxo-imidazole-2-yl. The compounds are useful as herbicides. (Claims 1 and 5).

Document D2 discloses compounds of formula I in which the group L-W is not present. The compounds are useful as herbicides (claims 1 and 4).

Document D3 discloses compounds of formula I in which the group L-W is not present. The compounds are useful as herbicides (claims 1 and 14).

Document D4 discloses compounds of formula I in which the group L-W is not present. The compounds are useful as herbicides (claim 1, 3).

Document D5 discloses a compound of formula I in which Q is Q_4 and group L-W is not present. The compounds have herbicidal activity (page 12, line 5-6, compound 10).

Document D6 discloses compounds of formula I in which Q is Q_3 and group L-W is not present. The compounds have herbicidal activity (column 2, line 6-42)

Document D7 discloses compounds of formula I in which Q is Q_3 and group L-W is not present. The compounds have herbicidal activity (compounds 2-6, 8, 9, 11-13 examples 1 and 2).

A compound of formula I is disclosed in none of the documents. Claim 1 therefore fulfills the requirements of Art 33(2) PCT.

A compound of formula II is disclosed in none of the documents. Claim 2 therefore fulfills the requirements of Art 33(2) PCT.

Claim 3 describes a herbicidal and plant-growth-inhibiting composition comprising a compound of formula I and is novel by consequence.

Claim 4 describes a method of controlling undesired plant growth applying a compound of formula I and is novel by consequence.

Claim 5 describes a method of inhibiting plant growth applying a compound of formula I and is novel by consequence.

V.4 Inventive step

Starting from document D1 the problem to be solved by the present application may be regarded as how to provide novel possibly improved nicotinoyl derivatives having herbicidal action. The solution of the applicant resides in replacement of the group R_{41} by an (halo)alkyl or (halo)cycloalkyl group.

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Replacing the group Q_4 for

- i. a group Q_1
- ii. a group Q_2
- iii. a group Q_3

Or the replacement of the group L-W for any of the different combinations given in the examples and any of the other combinations possible.

As regard to replacing the alkoxy group for a alkyl or cycloalkyl group for a person skilled in the art it does not seem surprising that activity is maintained for the present compounds.

Considering replacement of the group Q_4 for a group Q_1 , group Q_2 or group Q_3 as these groups Q are known from documents D2-D7 it does not seem surprising for a person skilled in the art that activity is maintained for these compounds.

As for the replacement of the group L-W for any of the different combinations given in the examples, the applicant is requested to show in how far the herbicidal activity of these compounds is improved in respect to the nicotinoyl derivatives know from the prior art, before inventive step can be assessed.